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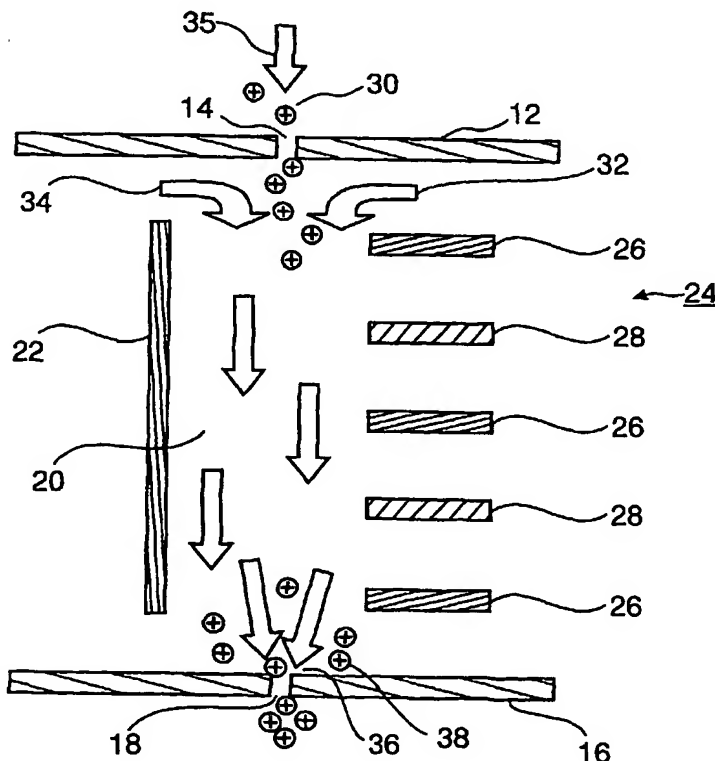
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(54) Title: FAIMS APPARATUS AND METHOD FOR SEPARATING IONS



(57) Abstract: A high field asymmetric waveform ion mobility spectrometer (FAIMS) for separating ions, and a method therefore. The FAIMS includes an electrode stack (24) having a length and comprising a plurality of electrodes (26, 28). Each electrode of the electrode stack is spaced apart from an adjacent electrode in a direction along the length of the electrode stack, and each electrode of the electrode stack has an edge that defines a portion of an edge of the electrode stack. At least an electrode (22) is spaced apart from the edge of the electrode stack in a direction approximately transverse to the length of the electrode stack, the space between the at least an electrode and the edge of the electrode stack defines an analytical gap (20) for allowing ions to propagate therebetween. Ions are separated as they move through an electric field within the analytical gap resulting from the application of an asymmetric waveform voltage to alternate electrodes of the electrode stack and application of a direct current voltage to at least some of the electrodes of the electrode stack and to the at least an electrode.

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC,

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